REMARKS/ARGUMENTS

Correction of Antecedent/Grammatical errors in claims

Independent Claims 1, 19, 37: Claims 1, 19, 37 refer to a first adaptor and another adaptor. However, in several dependent claims, such as, claims 13, 31, 49, 15, 33, 51, 61-64 that depend on indepenent claims 1, 19, 37 there is a reference to "the second adapter". The "another adaptor" of the independent claims 1, 19, 37 has been corrected to a second adapter so that dependent claims 13, 31, 49, 15, 33, 51, 61-64 have proper antecedent basis defined in the independent claims 1, 19, 37.

Claims 13, 31, 49: Antecedent basis errors have been corrected in claims 13, 31, 49 by changing "the reset request" to "a reset request".

Claims 7, 25, 43: Antecedent basis errors corrected for the second adapter.

Objected but Allowable claims 5-8, 10-12, 14, 15, 17, 23-26, 28-30, 32, 33, 35, 41-44, 46-48, 50, 51, 53, 55-63

Claims 5-8, 10-12, 14, 15, 17, 23-26, 28-30, 32, 33, 35, 41-44, 46-48, 50, 51, 53, 55-63 have been objected to by the Examiner as being dependent upon a rejected base claim. However the Examiner has mentioned that these claim would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants traverse the Examiner's objections to claims 5-8, 10-12, 14, 15, 17, 23-26, 28-30, 32, 33, 35, 41-44, 46-48, 50, 51, 53, 55-63 because these claims depend directly or indirectly on the pending independent claims 1, 19, 37 and Applicants submit arguments below for the patentability of the independent claims 1, 19, 37.

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Claim Rejections (under 35 U.S.C. 102)

The Examiner has rejected claims 1-4, 9, 13, 16, 18-22, 27, 31, 34, 36-40, 45, 49, 52, 54 as being unpatentable under 35 U.S.C. 102(b) in view of Powers (US 5,212,785) Applicants traverse.

Independent claims 1, 19, 37

Independent claims 1, 19, 37 provide a method, system, and article of manufacture for processing Input/Output (I/O) requests to a storage network including at least one storage device and at least two adaptors, wherein each adaptor is capable of communicating I/O requests to at least one storage device, comprising:

detecting an error in a system including a first adaptor, wherein the first adaptor is capable of communicating on the storage network after the error is detected;

determining whether the first adaptor is designated a master of the storage network after the error is detected;

starting a master switch timer that is less than a system timeout period if the first adaptor is the master after detecting the error, wherein an error recovery procedure in the system including the first adaptor is initiated after the system timeout period has expired; and

initiating an operation to designate a second adaptor in the storage network as the master if the first adaptor is the master in response to detecting an expiration of the master switch timer.

The Examiner has rejected independent claims 1, 19, 37 under 35 U.S.C. 102(b) as being unpatentable over the cited Powers (col. 1, lines 50-55; col 2: lines 1-5; col. 3, lines 65-68; col. 4, lines 1-5; col. 7: lines 11-14; col. 7: lines 24-30; col. 7: lines 65-67; col. 8, line 1).

In the response to arguments on Item 28, pages 8-9 of the Office action the Examiner has mentioned that "Powers describes what one skilled in the art would consider the designation of a master controller. One controller of a set of controllers, which is communicating with a set of memory devices fails. A redundant controller then receives a message indicating the failure,

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notifies the first level controllers of the error and the data paths are switched to the properly work controller."

The claims require determining whether the first adapter is designated as a master of the storage network after the error is detected, and if the first adapter is a master then:

(A) starting a master switch

(B) initiating an operation to designate a second adapter as the master, in response to detecting an expiration of the master switch timer.

Nowhere does the cited Powers teach or disclose the claim requirement of determining whether the first adapter is designated as a master of the storage network after the error is detected. In the cited Powers (Powers: Abstract) if a second level controller fails, the routing between the first level controllers and the memory devices is switched to a properly functioning second level controller. The Examiner is interpreting the first adapter of the claim requirements to be a failed second level controller of the cited Powers. In view of this interpretation should the Examiner maintain the rejection of the claims the Examiner is requested to indicate where the cited Powers teaches or discloses determining whether the failed second level controller is designated as a master of the storage network. In the cited Powers the failure of a second level controller causes a switching to another second level controller, and the cited Powers does not discuss determining whether the failed second level controller is a master.

The Examiner mentions on Page 9, Item 30.o that "Power describes what one skilled in the art would consider the designation of a master controller. Without prejudice to the Applicants position that the second level controller of the cited Powers is different from a master, even if the second level controller of the cited Powers is the master of the claim requirements, the cited Powers is not discussing when a determination is made as to whether the failed second level controller is a master. The claims require that after the error is detected, a determination is made as to whether the first adapter is designated as a master of the storage network. Should the Examiner maintain the rejection the Examiner is requested to indicate where the cited Powers

teaches or discloses the claim requirement that after the error is detected determining whether the first adapter is designated as master.

In fact an argument can be made that in the system of the cited Powers the switching from a failed second level controller to another second level controller takes place irrespective of whether the failed second level controller is a master. The claims require determining whether the first adapter is designated as a master of the storage network after the error is detected and if the first adapter is the master of the storage network, then

(A) starting a master switch

(B) initiating an operation to designate a second adaptor as the master, in response to detecting an expiration of the master switch timer.

In fact the cited Powers appears to mention that if there a multiple second level controllers and one experiences a failure then a switchover takes place to another second level controller. The claim has a requirement of determining whether the first adaptor is designated a master of the storage network after the error is detected. In the cited Powers whether the second level controller that fails is a master or not is not an issue for the switchover to another second level controller.

For the above reasons, the cited Powers does not teach or disclose the claim requirement of determining whether the first adapter is designated as a master of the storage network after the error is detected.

Other arguments for patentability presented previously are provided below.

The cited Powers discusses that in the event of a failure of a "second level" controller, the routing between "first level" controllers and memory devices is switched to a properly functioning "second level" controller (cited Powers: Abstract).

Nowhere does the cited Power teach or disclose the claim requirement of initiating an operation to designate a second adaptor as the master if the first adaptor is the master, in response to detecting an expiration of the master switch timer that is less than a system timeout period.

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The Examiner mentions that lines 65-67 of col. 7 and line 1 of col. 8 of the cited Power discusses the claim requirement of initiating an operation to designate a second adaptor in the storage network as the master if the first adaptor is the master, in response to detecting an expiration of the master switch timer (the Examiner has mistyped the master switch timer as one started I/O delay timer). Lines 65-67 of col. 7 to line 1 of col. 8 of the cited Power discusses that a "second level" controller ends up in "BOTH STATE". Additionally, according to the cited Power (Power: col. 5: lines 56-59) being in BOTH STATE indicates that a second level controller has control of the disk drives of both second level controllers. Therefore, the cited Power discusses that a "second level" controller takes control of the disk drives of both "second level" controllers. However, the claims require the following:

1) detecting an expiration of the master switch timer that is less than a system timeout period

2) in response to detecting the expiration of the master switch timer, designating a second adapter as the master if the first adapter is the master.

Lines 65-67 col. 7 and line 1 of col. 8 of the Examiner cited Power discusses that the first adapter takes over control of disk drives of both adapters. Nowhere does the cited Power teach or disclose the claim requirement that designates a second adaptor as the master if the first adaptor is the master, in response to detecting an expiration of the master switch timer that is less than a system timeout period.

Additionally, while the cited Power discusses that when a timeout counter expires (Power col. 7: lines 11-14) the other second level controller takes control of the primary set of disk drives. Nowhere does the cited Power teach or disclose the claim requirement of detecting an expiration of the master switch timer that is less than a system timeout period. While the cited Power discusses the expiry of a timeout counter, nowhere does the cited Power teach or disclose the claim requirement of a system timeout period, where the claims require detecting an expiration of the master switch timer that is less than a system timeout period.

Therefore, nowhere does the cited Power teach or disclose the claim requirement of

of initiating an operation to designate a second adaptor as the master if the first adaptor is the master in response to detecting an expiration of the master switch timer that is less than a system timeout period.

For the above reasons, claims 1, 19, 37 are patentable over the cited art.

Dependent Claims 2-18, 20-36, 38-64

The Examiner has also rejected or objected to pending claims 2-18, 20-36, 38-64. These claims are patentable over the cited art because they depend directly or indirectly on independent claims 1, 19, 37 which are patentable over the cited art for the reasons discussed above. Furthermore, the following of these claims provide additional grounds of patentability over the cited art for the reasons discussed below.

Claims 2, 20, 38

Claims 2, 20, 38 depend on claims 1, 19, 27 respectively and further require sending a reset request to the first adaptor after the master switch timer expires.

In the office action on Page 3, Item 4, the Examiner has indicated that the cited Powers in lines 24-27 of col. 7 discusses a system wherein a timeout value times out. In the cited Powers after the timeout value time out, "the second level controller 14 realizes that message 112 didn't get properly sent and that there has been a complete failure" and "releases control of both its primaries and secondary disk drives" and ends up in "NONE" state (cited Powers: col. 7: lines 26-32). In the NONE state the second level controller of the cited Powers does not control any disk drive (e.g., cited Powers Fig. 5I). Nowhere does the cited Powers teach or disclose the claim requirement of sending a reset request to the first adapter after the master switch timer expires.

Therefore, nowhere does the cited Powers teach or disclose the claim requirement of sending a reset request to the first adapter after the master switch timer expires. The cited Powers discusses that after a timeout value times out, the second level controller switches to the

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"NONE" states, which is different from the claim requirement of sending a reset request to the first adapter.

For the above reasons, claims 2, 20, 38 are patentable over the cited art.

Claims 3, 21, 39

Claims 3, 21, 39 depend on claims 2, 20, 38 respectively, wherein the reset causes a reset of the first adaptor and not other components within the system including the first adaptor.

The Examiner has indicated in Page 3, Item 5 of the office action that Powers in col. 5, lines 14-17 discusses a system where only the controller with the fault shuts down for fault recovery. However, the reset sent the secondary controller of the cited Powers to the "NONE" state as discussed above in the arguments for the patentability of claims 2, 20, 38 on which claims 3, 21, 39 depend. The "ZERO" state is different from shut down of the secondary controller in the cited Powers. Lines 14-17 of col. 5 of the cited Powers discusses sending a message to the partner second level controller that the failed second level controller is shutting down. However, claims 3, 21, 38 requires from the claims requirements of claims 2, 20, 38 that the reset request be sent to the first adaptor after the master switch timer expires. The cited Powers discusses sending a message to the partner second level controller and shutting down the failed second level controller. The claims require the sending a reset request to the first adaptor after the master switch timer expires where the the reset causes a reset of the first adaptor.

For the above reasons, claims 3, 21, 39 are patentable over the cited art.

Claims 4, 22, 40

Claims 4, 22, 40 depend on claims 2, 20, 38 respectively and further require that the reset causes a power cycle of the system including the first adaptor.

Col. 5, lines 14-17 of the cited Powers discusses shutting down the failed secondary controller. However, the reset of the claim requirements was interpreted by the Examiner in claims 2, 20, 38 on which claims 4, 22, 40 depend in a way such that the failed secondary adapter

is reset to the "ZERO" state. Applicants respectfully submit that the failed secondary adapter

cannot be sent both to the "ZERO" sate and shut down.

For the above reasons, claims 4, 22, 40 are patentable over the cited art.
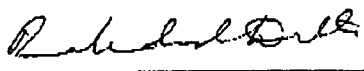

Claims 9, 27, 45

Claims 9, 27, and 45 depend on claims 7, 25, 43 respectively which are objected to.

Therefore the Examiner should withdraw the rejection of claims 9, 27, and 45.

Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over

the art of record. Should any additional fees beyond the fees indicated in the transmittal be

required, please charge Deposit Account No. 09-0449.

The attorney/agent of invites the Examiner to contact him at (310) 557-2292 if the

Examiner believes such contact would advance the prosecution of the case.

Dated: April 11, 2005   By:_____

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